

Remarks/Arguments:

The pending claims are 1-26. Claims 2-10 and 15-26 have been withdrawn from consideration. Claims 1 and 11 have been amended. No new matter is introduced therein.

Revised drawings for Figures 17, 18(a), 18(b), 18(c), 20, 21, 22, 23, and 24 have been provided so that the reference numbers shown in those figures correspond to the reference numbers used in the specification. For example, page 15, line 28 refers to first magnetic body 111 in Figure 17. But Figure 17, as originally presented, does not show a reference number 111. Instead, it shows a reference number 11. Similar inconsistencies were present between the specification and the above figures as originally presented. The amended figures make the reference numbers in the figures consistent with the reference numbers used in the specification. No new matter has been introduced by the amendments to the figures.

Since the position sensor shown as the fifth exemplary embodiment in Figures 20 and 21 is analogous to the position sensor shown as the fourth exemplary embodiment shown in Figure 17, the description of the fourth embodiment also applies to the fifth embodiment. Magnet 116 has a north pole 117 and a south pole 121. Magnet 118 has a north pole 122 and a south pole 119. Figures 17 and 20 show that south pole 121 is placed so that it is opposite to north pole 122 and that north pole 117 is placed so that it is opposite to south pole 119. During the rotation of object 133, a magnetic circuit is formed connecting magnets 116 and 118. (page 18, lines 6-16).

Claims 1, 11, and 14 have been rejected under 35 U.S.C. § 102(b) as anticipated by Baba et al. (U.S. Patent No. 3,777,273). Baba shows two magnets 14, 14', a magnetic sensor element 24, and an object 20 to be detected. Figure 3 shows magnetic circuits A and B at the bottom of the device shown in Figure 1. Figure 7 shows magnetic circuits A and B at the bottom of the device shown in Figure 6. Each of the magnetic circuits in Figure 3 pass through end 20a of rotary shaft 20. The magnetic circuit A flows from the north pole of magnet 14, through end 20a, to the south pole of magnet 14. The magnetic circuit B flows from the north pole of magnet 14', through end 20a, to the south pole of magnet 14'. Similar magnetic circuits obtain in Figure 7. Neither Figure 3 nor Figure 7 show a magnetic circuit that connects magnets 14 and 14'.

Claim 1 has first been amended by clarifying the recitation of the magnetic sensor element. Prior to this amendment, claim 1 recited "at least one magnetic sensor element within said magnetic circuit." It also recited "said magnet stationary relative to said object." The latter recitation has now been clarified by amending it to read "said magnetic sensor element stationary relative to said object." This amendment has not been made in order to avoid prior art.

Claim 1 has also been amended by reciting "a plurality of magnets forming a magnetic circuit connecting the magnets." (emphasis added). Since Baba does not show a magnetic circuit connecting the magnets, amended claim 1 is not subject to rejection under 35 U.S.C. § 102(b) as anticipated by Baba et al.

Since claim 11 depends from amended claim 1, claim 11 is also not subject to rejection under 35 U.S.C. § 102(b) as anticipated by Baba et al. for at least the same reasons that amended claim 1 is not subject to rejection. Nevertheless, claim 11 has been amended. It now recites that the "magnetic sensor element is held by said two U-shaped magnetic bodies." This recitation is supported by page 20, lines 21-27. The advantage of this feature is that it increases sensitivity of the output signal produced by the magnetic sensor 127. (page 20, lines 29-30). This feature is not shown in Baba. In Baba, magnet effective elements 24, 24' are placed only on magnet member 12. They are not held by two magnetic bodies. For these additional reasons, amended claim 11 is not subject to rejection under 35 U.S.C. § 102(b) as anticipated by Baba et al.

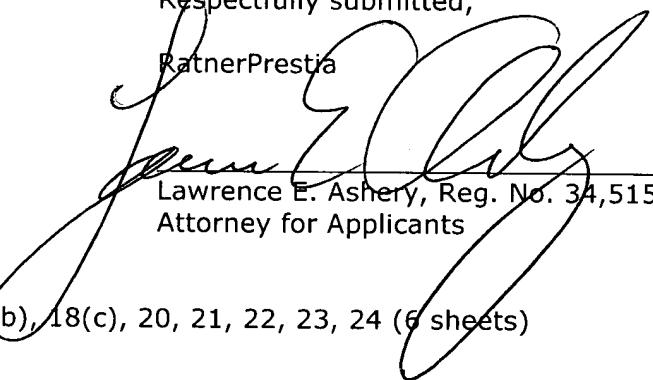
Claim 14 depends from amended claim 11. Accordingly, claim 14 is not subject to rejection under 35 U.S.C. § 102(b) as anticipated by Baba et al. for at least the same reasons that amended claim 1 is not subject to rejection and/or for at least the same reasons that amended claim 11 is not subject to rejection. In addition, there is no suggestion in Baba et al. to make the shape of its magnetic bodies 12 and 16 "at least partially conform with an external shape" of the object 20, 20a to be detected. Accordingly, for these additional reasons, claim 14 is not subject to rejection under 35 U.S.C. § 102(b) as anticipated by Baba et al.

Claims 12 and 13 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Baba et al. These claims depend from amended claims 1 and 11. Baba neither discloses nor suggests the features now recited in amended claims 1 and 11. Therefore, claims 12 and 13 are not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Baba et al. The Office Action contends that the shape of the magnetic body is a matter of design selection and that applicants have not disclosed that the feature solves any problem. Applicants respectfully disagree. Specifically, the specification states that the structure eliminates clearances between the magnetic sensor element 127 and the magnetic detecting portions 141, 142. The elimination of these clearances "provides for a valid effect of increasing sensitivity of output signal produced by the magnetic sensor element 127." (page 20, lines 25-29). For these additional reasons, claims 12 and 13 are not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Baba et al.

For all of the above reasons, applicants solicit allowance of claims 1 and 11-14.

Respectfully submitted,

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Attachments: Figures 17, 18(a), 18(b), 18(c), 20, 21, 22, 23, 24 (6 sheets)

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